

WHAT IS CLAIMED IS:

1 1. A method for communicating information from a source to a destination, the
2 source served by a first network and the destination served by a second network,
3 comprising the steps of
4 receiving at an interworking facility a first frame which includes a payload and a
5 first destination address in a first format compatible with said first network, the first
6 destination address established by the interworking facility by resolving destinations
7 available to the source through the second network;
8 forming a second frame of a second format compatible with the second network,
9 the second frame including the payload; and
10 mapping the first destination address to a second destination address specifying in
11 the second format the address of the destination in the second network so that the second
12 network, upon receipt of the second destination address, can route the second frame to the
13 destination.

1 2. The method according to claim 1 wherein the first frame has an Ethernet
2 format and wherein the first destination address comprises a Virtual Local Area Network
3 tag within the Ethernet-formatted first frame.

1 3. The method according to claim 1 wherein the second frame has an
2 Asynchronous Transport (ATM) format and wherein the second destination address
3 comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit (PVC).

1 4. The method according to claim 2 wherein the second frame has an
2 Asynchronous Transport (ATM) format and wherein the second destination address
3 comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit (PVC).

1 5. The method according to claim 4 wherein the mapping of the first
2 destination address to the second destination address comprises the step of mapping the
3 VLAN tag to the ATM VPN PVC.

1 6. The method according to claim 1 wherein the first frame has an
2 Asynchronous Transport (ATM) format and wherein the first destination address
3 comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit (PVC).

1 7. The method according to claim 6 wherein the second frame has an
2 Ethernet format and wherein the second destination address comprises a Virtual Local
3 Area Network (VLAN) tag within the Ethernet-formatted first frame

1 8. The method according to claim 7 wherein the mapping of the first
2 destination address to the second destination address comprises the step of mapping the
3 ATM VPN PVC to the VLAN tag.

1 9. The method according to claim 1 wherein the interworking facility
2 resolves destinations available to the source by the steps of:
3 receiving at the interworking facility an Address Resolution Protocol (ARP)
4 polling request generated by the source for the purpose of determining at least one
5 destination available to the source;
6 matching an identification tag in the ARP polling request to a destination
7 identifier identifies the destination through the second network;
8 encoding the ARP polling request into a format compatible with the second
9 network for transmission to the destination along the identified path;
10 receiving at the interworking facility a destination-identifying address generated
11 by the destination responsive to the encoded ARP polling request;
12 formatting the destination-identifying address at the interworking facility into a
13 format compatible with the first network; and
14 sending the formatted destination-identifying address to the source so that the
15 source may identify, and send information to the destination using the formatted
16 destination-identifying address such that the destination appears to the source as an
17 endpoint in the first network.

1 10. A method for communicating information embodied in a payload of an Ethernet-
2 formatted frame from a source served by a first network and destined for at least one
3 destination served by a second network, comprising the steps of:
4 resolving via an interworking facility an identifying address for the destination;
5 receiving the first frame at the interworking facility, the first frame also including
6 a Virtual Local Area Network (VLAN) Tag a tag specifying in a first format the
7 identifying address for destination in the second network;
8 forming a second frame having a second format compatible with the second
9 network and including the payload; and
10 mapping the address specified in the VLAN tag to a second destination address
11 that is of a second format to enable transmission of the second frame to the destination
12 through the second network using the second destination address.

1 11. The method according to claim 10 wherein the second frame has an
2 Asynchronous Transport (ATM) format and wherein the identifying address of the
3 destination comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit
4 (PVC).

1 12. The method according to claim 10 wherein the mapping of the first
2 destination address to the identifying address of the destination comprises the step of
3 mapping the VLAN tag to the ATM Virtual Circuit (PVC).

1 13. A method for communicating information embodied in a payload of a first
2 ATM-formatted frame, originating at a source served by a first network, to at least one
3 destination served by a second network having a broadcast protocol, comprising the steps
4 of:
5 resolving via an interworking facility an identifying address for the destination;
6 receiving at the interworking facility the a frame that also includes a first
7 destination address in the form of an ATM Virtual Private Network (VPN) Permanent
8 Virtual Circuit (PVC) specifying the identifying address for the destination in a first
9 format;

forming a second frame of a second format compatible with the second network,
the second frame including the payload; and
mapping the first destination address into a second destination address in the
second format to enable routing of the second frame to the destination.

14 13. The method according to claim 12 wherein the second frame has an
Ethernet format and wherein the second destination address comprises a Virtual Local
Area Network (VLAN) tag within the Ethernet-formatted first frame.

15 14. The method according to claim 13 wherein the mapping of the first
destination address to the second destination address comprises the step of mapping the
ATM VPN VCI to the VLAN tag and creating an Ethernet frame.

16 15. A method for enabling communication of information from a source
served by a first network, to at least one destination served by a second network,
comprising the steps of:
receiving at an interworking facility an Address Resolution Protocol (ARP)
polling request generated by the source for the purpose of determining at least one
destination available to the source;
matching an identification tag in the ARP polling request to a path identifier that
identifies a path to said one destination through the second network;
encoding the ARP polling request into a format compatible with the second
network for transmission to the destination along the identified path;
receiving at the interworking facility a destination-identifying address generated by the
destination responsive to the encoded ARP polling request;
formatting the destination-identifying address at the interworking facility into a
format compatible with the first network; and
sending the formatted destination-identifying address to the source so that the
source may identify, and send information to the destination using the formatted
destination-identifying address such that the destination appears to the source as an
endpoint in the first network.

1 ~~17~~ 16. A method for communicating information from a source to a destination,
2 the source served by a first network and the destination served by a second network, the
3 first and second networks having a separate one of a broadcast layer 2 and point-to-point
4 circuit-type layer 2 protocol, comprising the steps of

5 receiving at an interworking facility a first frame which includes a payload and a
6 first destination address in a first format compatible with said first network, the first
7 destination address established by the interworking facility by resolving destinations
8 available to the source through the second network;

9 forming a second frame of a second format compatible with the second network,
10 the second frame including the payload; and

11 mapping the first destination address to a second destination address specifying in
12 the second format the address of the destination in the second network so that the second
13 network, upon receipt of the second destination address, can route the second frame to the
14 destination.

1 ~~18~~ 17. The method according to claim 16 wherein the first frame has an Ethernet
2 format and wherein the first destination address comprises a Virtual Local Area Network
3 tag within the Ethernet-formatted first frame.

1 ~~19~~ 18. The method according to claim 1 wherein the second frame has an
2 Asynchronous Transport (ATM) format and wherein the second destination address
3 comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit (PVC).

1 ~~20~~ 19. The method according to claim 16 wherein the second frame has an
2 Asynchronous Transport (ATM) format and wherein the second destination address
3 comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit (PVC).

1 ~~21~~ 20. The method according to claim 19 wherein the mapping of the first
2 destination address to the second destination address comprises the step of mapping the
3 VLAN tag to the ATM VPN PVC.

1 ~~22~~ ²¹. The method according to claim 16 wherein the first frame has an
2 Asynchronous Transport (ATM) format and wherein the first destination address
3 comprises an ATM Virtual Private Network (VPN) Permanent Virtual Circuit (PVC).

1 ²³ ~~22~~. The method according to claim 21 wherein the second frame has an
2 Ethernet format and wherein the second destination address comprises a Virtual Local
3 Area Network (VLAN) tag within the Ethernet-formatted first frame

1 ²⁴ ~~23~~. The method according to claim 22 wherein the mapping of the first
2 destination address to the second destination address comprises the step of mapping the
3 ATM VPN PVC to the VLAN tag.